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| 09/824,436 | 04/02/2001 | Toshiaki Yoshihara | 0671.65390 | 8194 |

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| LEWIS, DAVID LEE | |
| **ART UNIT** | **PAPER NUMBER** |
| 2629 | |

DATE MAILED: 05/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 09/824,436 | YOSHIHARA ET AL. | |
| | Examiner | Art Unit | |
| | David L. Lewis | 2629 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *17 April 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *02 April 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *4/17/2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. **Claims 1-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka et al. (6489952).**

**As in claims 1, Tanaka et al. teaches** of a liquid crystal device comprising: a liquid crystal material characterized by spontaneous polarization, **column 25 lines 1-13**,

being responsive to an applied signal for writing data and controlling a light transmittance of said material, wherein a voltage of said signal, corresponding to an image to be displayed and switched by thin film transistor, is offset to either a single, positive or negative constant level from 0 V at said material at all times during operation, except during signal application, **column 6 lines 25-40, column 7 lines 43-51, column 8 lines 45-58**.

Wherein as shown in figures 1 and 4, the com1 signal line is driven alternately to the com2 signal line, both lines being driven with an offset value for the purpose of making the voltage applied to the image pixel low. The signal line com1 alternates polarity corresponding to when the odd line is driven for display and the offset is determined by the constant com1 or com2 signal during each frame.

**However Tanaka et al. is silent as to wherein** the value of the offset has the same polarity at all times during operation except during the signal application, and wherein the offset is applied automatically at all times during operation except during signal application.

Tanaka et al. teaches of two offset values used as part of an inversion driving system, however the **non inversion** driving system represents a well known drive alternative available to the skilled artisan as a design choice, reducing the complexity of the display drive. While the offset alternates polarity it would have been obvious to the skilled artisan to provide for a non-alternating offset to maintain the benefits of the offset while reducing the complexity of the drive system. Such a modification of Tanaka would produce a drive scheme wherein the value of the offset has the same polarity at all times during operation except during the signal application, and wherein the offset is applied automatically at all times during operation except during signal application. For this reason, it would have been obvious to the skilled artisan at the time of the invention to modify the device of Tanaka by providing a drive system having a non inversion driving system because it would allow for a less complex and known driving system while maintaining the benefits of the offset driving scheme, as found in claim 1.

**As in claims 2, Tanaka et al. teaches** of wherein said signal is offset positively or negatively so that a light transmission through said liquid crystal material being driven by said signal becomes to be blocked, **column 8 lines 45-58**, wherein the potential is of the counter electrode is made opposite the image signal, said light transmission being alternately blocked in relation to driving odd and even groups.

**As in claims 3, Tanaka et al. teaches** of liquid crystal device comprising: a first substrate including a first electrode on a first face thereof, **figure 18B items 1771 and 1772**;

a second substrate including a second electrode on a second face thereof, wherein said second substrate and said first substrate are sealed spaced apart so that said first and second face each other, **figure 17A item 1701**;

a liquid crystal material having spontaneous polarization filled in a space between said first and second substrates, **figure 18B item 1774, column 25 lines 1-13**;

a first voltage generating circuit for supplying a voltage to said first electrode, **figure 1 item COM, column 8 lines 30-37**;

and a data signal circuit for supplying a data pulse to said second electrode, **figure 4 item S1-Sn**,

wherein a voltage across said liquid crystal between said first and second electrodes is offset to either a single, positive or negative constant level from a reference voltage of said device at all times during operation, except during said data pulse being applied, **column 8 lines 45-58**.

Wherein as shown in figures 1 and 4, the com1 signal line is driven alternately to the com2 signal line, both lines being driven with an offset value for the purpose of making the voltage applied to the image pixel low. The signal line com1 alternates polarity corresponding to when the odd line is driven for display.

**However Tanaka et al. is silent as to wherein** the value of the offset has the same polarity at all times during operation except during the signal application, and wherein the offset is applied automatically at all times during operation except during signal application.

Tanaka et al. teaches of two offset values used as part of an inversion driving system, however the **non inversion** driving system represents a well known drive alternative available to the skilled artisan as a design choice, reducing the complexity of the display drive. While the offset alternates polarity it would have been obvious to the skilled artisan to provide for a non-alternating offset to maintain the benefits of the offset while reducing the complexity of the drive system. Such a modification of Tanaka would produce a drive scheme wherein the value of the offset has the same polarity at all times during operation except during the signal application, and wherein the offset is applied automatically at all times during operation except during signal application. For this reason, it would have been obvious to the skilled artisan at the time of the invention to modify the device of Tanaka by providing a drive system having a non inversion driving system because it would allow for a less complex and known driving system while maintaining the benefits of the offset driving scheme, as found in claim 3.

**As in claims 4, Tanaka et al. teaches** of wherein said data pulse is offset positively or negatively so that a light transmission through said liquid crystal material being driven by said pulse becomes to be blocked, column 8 lines 45-58, wherein the potential is of the counter electrode is made opposite the image signal, said light transmission being alternately blocked in relation to driving odd and even groups..

**As in claims 5, Tanaka et al. teaches** of wherein said second substrate having an active element electrically connected to said second electrode so as to electrically control a picture element, figure 18A item 1701 (active matrix circuit).

**As in claims 6, Tanaka et al. teaches** of wherein said voltage supplied by said first voltage generating circuit is offset so that a voltage across said liquid crystal material between said first and second electrodes is kept positively or negatively to said reference voltage of said device except during said data pulse being

applied, **column 8 lines 45-58**. Wherein as shown in figures 1 and 4, the com1 signal line is driven alternately to the com2 signal line, both lines being driven with an offset value for the purpose of making the voltage applied to the image pixel low. The signal line com1 alternates polarity corresponding to when the odd line is driven for display..

**As in claims 7, Tanaka et al. teaches** of liquid crystal panel comprising: a first substrate including a first electrode on a first face thereof, **figure 18B items 1771 and 1772**;

a second substrate including a second electrode on a second face thereof, wherein said second substrate and said first substrate are sealed spaced apart so that said first and second face each other, **figure 17A item 1701**;

a liquid crystal material having spontaneous polarization filled in a space between said first and second substrates, **figure 18B item 1774, column 25 lines 1-13**;

a first voltage generating circuit for supplying a voltage to said first electrode, **figure 1 item COM, column 8 lines 30-37**;

a data signal circuit for supplying a data pulse to said second electrode, **figure 1 item 101, figure 4 item S1-Sn**;

and a light source for emitting more than monochromatic lights, each of said monochromatic lights being emitted time divisionally toward said first or second substrates, **column 2 lines 15-25, column 28 lines 35-45**,

wherein a voltage across said liquid crystal material between said first and second electrodes is offset to either a single, positive or negative constant level

from a reference voltage of said device at all times during operation, during except said during said data pulse application when an image is displayed, **column 8 lines 45-58**.

**However Tanaka et al. is silent as to wherein** the value of the offset has the same polarity at all times during operation except during the signal application, and wherein the offset is applied automatically at all times during operation except during signal application.

Tanaka et al. teaches of two offset values used as part of an inversion driving system, however the **non inversion** driving system represents a well known drive alternative available to the skilled artisan as a design choice, reducing the complexity of the display drive. While the offset alternates polarity it would have been obvious to the skilled artisan to provide for a non-alternating offset to maintain the benefits of the offset while reducing the complexity of the drive system. Such a modification of Tanaka would produce a drive scheme wherein the value of the offset has the same polarity at all times during operation except during the signal application, and wherein the offset is applied automatically at all times during operation except during signal application. For this reason, it would have been obvious to the skilled artisan at the time of the invention to modify the device of Tanaka by providing a drive system having a non inversion driving system because it would allow for a less complex and known driving system while maintaining the benefits of the offset driving scheme, as found in claim 7.

**As in claims 8, Tanaka et al. teaches** of liquid crystal panel comprising: a first substrate including a first electrode on a first face thereof, **figure 18B items 1771 and 1772**;

a second substrate including a second electrode on a second face thereof, wherein said second substrate and said first substrate are sealed spaced apart so that said first and second face each other, **figure 17A item 1701**;

a liquid crystal material having spontaneous polarization filled in a space between said first and second substrates, **figure 18B item 1774, column 25 lines 1-13**;

a first voltage generating circuit for supplying a voltage to said first electrode, **figure 1 item COM, column 8 lines 30-37**;

a data signal circuit for supplying a data pulse to said second electrode, **figure 1 item 101**, **figure 4 item S1-Sn**;

and polarizer films provided on each outer face of said first and second substrates, **column 24 lines 15-35, column 28 lines 35-45,**

wherein a voltage across said liquid crystal material between said first and second electrodes is offset to either a single, positive or negative constant level from a reference voltage of said panel at all times during operation except during said data pulse application so that said liquid crystal material blocks a light transmission through said liquid crystal material when the image is displayed, **column 8 lines 45-58,**

wherein the potential is of the counter electrode is made opposite the image signal, said light transmission being alternately blocked in relation to driving odd and even groups.

**However Tanaka et al. is silent as to wherein** the value of the offset has the same polarity at all times during operation except during the signal application,

and wherein the offset is applied automatically at all times during operation except during signal application.

Tanaka et al. teaches of two offset values used as part of an inversion driving system, however the **non inversion** driving system represents a well known drive alternative available to the skilled artisan as a design choice, reducing the complexity of the display drive. While the offset alternates polarity it would have been obvious to the skilled artisan to provide for a non-alternating offset to maintain the benefits of the offset while reducing the complexity of the drive system. Such a modification of Tanaka would produce a drive scheme wherein the value of the offset has the same polarity at all times during operation except during the signal application, and wherein the offset is applied automatically at all times during operation except during signal application. For this reason, it would have been obvious to the skilled artisan at the time of the invention to modify the device of Tanaka by providing a drive system having a non inversion driving system because it would allow for a less complex and known driving system while maintaining the benefits of the offset driving scheme, as found in claim 8.

**As in claims 9, Tanaka et al. teaches** of liquid crystal display panel comprising: a first substrate including a common electrode on a first face thereof, **figure 18B items 1771 and 1772,**

a second substrate including data signal electrodes, **figure 1 item 101**, scanning electrodes, **figure 1 item 102**,

and switching elements which are connected to one of said data signal electrodes and one of said scanning electrodes on a second face thereof, **figure 1 item (1,1)**,

wherein said second substrate and said first substrate are sealed spaced apart so that said first and second faces face each other, **figure 18B items 1771 and 1701**;

a liquid crystal material having spontaneous polarization filled in a space between said first and second substrates, **figure 18B item 1774**;

a common reference voltage generating circuit for defining a reference voltage of said data signal electrode, **column 8 lines 30-55**;

and a common electrode voltage generating circuit for supplying a voltage to said common electrode, wherein said common voltage is offset to either a single, positive or negative constant voltage at all times during operation when an image is displayed, **column 6 lines 25-40, column 8 lines 30-55,**

wherein said common voltage generating circuit is not shown, however is inherent to the shown system given the signals produced, figure 4, by on the shown display, **figure 1**.

**However Tanaka et al. is silent as to wherein** the value of the offset has the same polarity at all times during operation except during the signal application, and wherein the offset is applied automatically at all times during operation except during signal application.

Tanaka et al. teaches of two offset values used as part of an inversion driving system, however the **non inversion** driving system represents a well known drive alternative available to the skilled artisan as a design choice, reducing the complexity of the display drive. While the offset alternates polarity it would have been obvious to the skilled artisan to provide for a non-alternating offset to maintain the benefits of the offset while reducing the complexity of the drive

system. Such a modification of Tanaka would produce a drive scheme wherein the value of the offset has the same polarity at all times during operation except during the signal application, and wherein the offset is applied automatically at all times during operation except during signal application. For this reason, it would have been obvious to the skilled artisan at the time of the invention to modify the device of Tanaka by providing a drive system having a non inversion driving system because it would allow for a less complex and known driving system while maintaining the benefits of the offset driving scheme, as found in claim 9.

**As in claims 10, Tanaka et al. teaches** of wherein said liquid crystal material having spontaneous polarization is ferroelectric liquid crystal material, column 25 lines 1-13.

**As in claims 11, Tanaka et al. teaches** of wherein said first substrate has a color filter, **column 28 lines 35-45**.

**As in claims 12, Tanaka et al. teaches** of liquid crystal display panel comprising: a first substrate including a common electrode on a first face thereof, **figure 18B items 1771 and 1772**;

a second substrate including data bus lines, **figure 1 item 101**,

scanning bus lines, **figure 1 item 102**,

and switching elements which are connected to one of said data bus lines and one of said scanning bus lines on a second face thereof, **figure 1 item (1,1),**

wherein said second substrate and said first substrate are sealed spaced apart so that said first and second faces face each other, **figure 18B items 1771 and 1701**;

a liquid crystal material having spontaneous polarization filled in a space between said first and second substrates, **figure 18B item 1774**;

and a common electrode voltage generating circuit for supplying a voltage to said common electrode, **column 6 lines 25-40, column 8 lines 30-55,**

wherein said common voltage generating circuit is not shown, however is inherent to the shown system given the signals produced, figure 4, by on the shown display, **figure 1 item COM1**;

and a common reference voltage generating circuit for defining a reference voltage of said data bus lines, wherein said reference voltage is offset to either a single positive or negative voltage at all times during operation when the image is displayed, **column 6 lines 25-40, column 8 lines 30-55,**

wherein said common voltage generating circuit is not shown, however is inherent to the shown system given the signals produced, figure 4, by on the shown display, **figure 1, item COM2**.

**However Tanaka et al. is silent as to wherein** the value of the offset has the same polarity at all times during operation except during the signal application, and wherein the offset is applied automatically at all times during operation except during signal application.

Tanaka et al. teaches of two offset values used as part of an inversion driving system, however the **non inversion** driving system represents a well known drive alternative available to the skilled artisan as a design choice, reducing the complexity of the display drive. While the offset alternates polarity it would have been obvious to the skilled artisan to provide for a non-alternating offset to

maintain the benefits of the offset while reducing the complexity of the drive system. Such a modification of Tanaka would produce a drive scheme wherein the value of the offset has the same polarity at all times during operation except during the signal application, and wherein the offset is applied automatically at all times during operation except during signal application. For this reason, it would have been obvious to the skilled artisan at the time of the invention to modify the device of Tanaka by providing a drive system having a non inversion driving system because it would allow for a less complex and known driving system while maintaining the benefits of the offset driving scheme, as found in claim 12.

**As in claims 13, Tanaka et al. teaches** of wherein said liquid crystal material having spontaneous polarization is ferroelectric liquid crystal material, column 25 lines 1-13.

**As in claims 14, Tanaka et al. teaches** of wherein said first substrate has a color filter, column 28 lines 35-45.

**As in claims 15, Tanaka et al. teaches** of further comprising: polarizer films provided on each outer faces of said first and second substrate, wherein said common voltage is offset so as that a light transmission of said liquid crystal material becomes to be block, column 24 lines 15-35.

**As in claims 16, Tanaka et al. teaches** of further comprising: a light source emitting a plurality of monochromatic colors, wherein each monochromatic color is emitted by said light source time divisionally in synchronism with an operation of said liquid crystal display panel, column 2 lines 15-23, column 28 lines 35-45.

**As in claim 17, Tanaka et al. teaches** of a liquid crystal device comprising: a first substrate including a first electrode on a first face thereof, **figure 18B items 1771 and 1772**;

a second substrate including a second electrode on a second face thereof, wherein said second substrate and said first substrate are sealed spaced apart so that said first and second substrates face each other, **figure 18B items 1771 and 1701**;

a liquid crystal material having spontaneous polarization filled in a space between said first and second substrates, **figure 18B item 1774**;

a first voltage generating circuit for supplying a voltage to said first electrode, **figure 1 item com1, column 6 lines 25-35 (while not shown said circuit is inherent to said signal source)**;

and a data signal circuit for supplying a data pulse to said second electrode, **figure 1 item 101**,

wherein a voltage across said liquid crystal between said first and second electrodes is offset to either a single, positive or negative constant level form a reference voltage., **column 8 lines 47-58**.

Where the offset value is determined by the constant COM1 or COM2 signal during each frame.

**However Tanaka et al. is silent as to wherein** the value of the offset has the same polarity at all times during operation except during the signal application, and wherein the offset is applied automatically at all times during operation except during signal application.

Tanaka et al. teaches of two offset values used as part of an inversion driving system, however the **non inversion** driving system represents a well known

drive alternative available to the skilled artisan as a design choice, reducing the complexity of the display drive. While the offset alternates polarity it would have been obvious to the skilled artisan to provide for a non-alternating offset to maintain the benefits of the offset while reducing the complexity of the drive system. Such a modification of Tanaka would produce a drive scheme wherein the value of the offset has the same polarity at all times during operation except during the signal application, and wherein the offset is applied automatically at all times during operation except during signal application. For this reason, it would have been obvious to the skilled artisan at the time of the invention to modify the device of Tanaka by providing a drive system having a non inversion driving system because it would allow for a less complex and known driving system while maintaining the benefits of the offset driving scheme, as found in claim 17.

***Response to Arguments***

2. Applicant's arguments filed on 4/17/2006 with respect to claims 1-17 have been considered but are moot in view of the new grounds of rejection based on Tanaka. The Applicant's amendment to the claims distinguish over Hasegawa given the non-automatic at all times application of said offset. Tanaka et al. teaches of two offset values used as part of an inversion driving system, however the **non inversion** driving system represents a well known drive alternative available to the skilled artisan as a design choice, reducing the complexity of the display drive. While the offset alternates polarity it would have been obvious to the skilled artisan to provide for a non-alternating offset to maintain the benefits of the offset while reducing the complexity of the drive system. Such a modification of Tanaka would produce a drive scheme wherein the value of the offset has the same polarity at all times during operation except during the signal application, and wherein the offset is applied automatically at all times during operation except during signal application. For this reason, it would have been obvious to the skilled artisan at the time of the invention to modify the device of

Tanaka by providing a drive system having a non inversion driving system because it would allow for a less complex and known driving system while maintaining the benefits of the offset driving scheme, as found in claim the amended claims.

***Conclusion***

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **David L. Lewis** whose telephone number is **(571) 272-7673**. The examiner can normally be reached on MT and THF from 8 to 5. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala, can be reached on **(571) 272-7681**. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (571)-273-8300.

5. Please note that all future correspondences directed to David L. Lewis must be sent to Art Unit 2629.

6. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Examiner: David L. Lewis
May 15, 2006